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PLANT ADAPTABILITY

A curious instance of how a plant may adapt itself to unusual conditions was observed in an individual Button Cactus, recently found by the writer in Texas.

Mammillaria micromeris is a small growing cactus usually found on bare ground or in rock crevices on the summit of limestone hills, where they are exposed to the sun. Commonly (as found by the writer) the plant is simple, with a depressed top, slightly elevated above the surrounding soil or rock-surface. In Mexico it more frequently occurs in cespitose masses, but in Texas, its northern limit of distribution, it more often resembles a small white button lying on the ground, whence its popular name.

In ascending one of the steep hillsides leading to the flattened top of the limestone formation frequented by this cactus, I chanced to find a dead plant of the lecheguilla (Agave lecheguilla), and above its cluster of dried leaves was a head of the button cactus, facing the sun. Digging down I finally secured the remarkable specimen described as follows:—greatest diameter, near the summit, 35 mm; least diameter 8 mm, near the base; hight of stem, 11 cm; length of the elongated slender portion of the stem between the base and the normal top, 9 cm; greatest diameter below the normal top, 25 mm; this prolongation, by which the plant raised itself from the shade of the lecheguilla was too weak to support the plant, and was covered with scanty clusters of weak slender spines.

Evidently the plant exerted all its energy in forcing an upward growth to the light, and when it had reached the sunshine it was unusually well prepared to stand the struggle for existence, with roots strongly entrenched in the shade, and with a greater storage capacity because of its elongated trunk, was able to grow rapidly to a size greater than its neighbors under normal conditions.

A smaller similar specimen was also found, which had developed a stem sufficiently strong for the support of its well-developed head.

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MOLLUSCAN WORLD

BINNEYA NOTABILIS

Shell light, thin, ear-shaped, horn-colored, 7 to 14 mm

long, too small to house the animal. It has been found on the Santa Barbara and Guadalupe Islands, and on the mainland of Baja California, under dead plants of Agave Shawii, but not on the main land in California.

CHLAMYDOCONCHA ORCUTTI

A single specimen of this curious clam, that lives outside of its rudimentary shell, is reported from Monterey bay, California. Only known previously from the type locality, False bay, San Diego, California, where it was found anchored by a byssus to the under side of stones.

HELIX ASPERSA

The spotted snail is a European species, long years ago detected at Charleston, S. C., and now not rare about many settlements. In some places it has become a source of annoyance, eating garden flowers and vegetables altogether too freely.

———x———

SELANGINELLA LEPIDOPHYLLA

On steep limestone hills, in portions of Texas and Mexico, occurs a curious plant clinging tenaciously by countless fibrous roots that at once hold the scanty soil and the fern-like plant in place. Literally thousands may be found where a misstep would land a careless hunter at the foot of a precipice hundreds of feet high. So thoroughly does this plant take possession that even a cactus finds it difficult or impossible to establish and maintain itself in a mat of resurrection plants (Selaginella lepidophylla), which seem jealous of any encroachment upon their domain.

For months these plants remain dry, even for years when no rain falls, the stems curled up into compact balls, but these quickly unfurl after a welcome shower and spread their bright green fronds over the rocks like a magic carpet.

The plant may be kept for years in a house, dry and in compact form, and upon placing in a saucer of water will soon show a broad expanse of green, which fact has given rise to its popular name. Other species of selaginella are sometimes imported from Mexico and sold by curio dealers under the same common name, but these have no relationship with the "Resurrection Plant" of the Holy Land, sometimes advertised.

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A BOTANICAL STUDY OF MEXICO

My botanical explorations in Mexico have included every state except Campeche, Tabasco, Yucatan and Chiapas, but

my knowledge of the flora of the country is still very fragmental. On December 20, 1909, I left my home in San Diego, California, for Mexico City, hoping to spend some six months in continuing my special studies of the Cactaceae, and a few other families of distinctively ornamental plants. I did not return until December 10, 1910, after nearly a year of continuous field work.

For over a month my investigations were confined to the musea and libraries of Mexico City, with very satisfactory results. I first visited Jalapa, in the state of Vera Cruz—a region where many botanists have collected in the past, credited with a greater variety of plants than any other portion of the world, but still ready to yield many new botanical treasures. My stay was at a most unfavorable season, and short, and at its termination I went to Vera Cruz—where many flowers were just coming into bloom.

I established my headquarters at Vera Cruz for three months, making excursions from thence along the Vera Cruz al Isthmo railway to Cordoba, and south to its junction with the Tehuantepec National Ry., at Santa Lucretia. Though the oldest and most important seaport of the republic, the environs of Vera Cruz yielded one new shrub, much to my surprise, as a result of very desultary collecting. Much time was spent in this period near Sanborn, a few miles north of Santa Lucretia, near the boundary line between the states of Vera Cruz and Oaxaca.

I then removed to the quaint Indian city of Tehuantepec, traversing the entire line of the Tehuantepec National Ry., from Coatzacoalcos (Puerto Mexico) to Salina Cruz. One trip from the latter port was made by steamer to Puerto Angel, Oaxaca, but the season was so little advanced that I found very few flowers.

The Isthmus of Tehuantepec, comprised in the states of Vera Cruz and Oaxaca, thus occupied my attention until the last of July, when I returned to Mexico City, at a time when the whole table lands of Mexico were a mass of bloom. Compelled to remain in Mexico City for a time, I started to explore the wonderful valley of Mexico—a region that recalls a host of eminent names of the past, and only lately so well covered by the labors of Cyrus G. Pringle—yet, in his footsteps I gleaned a few species that apparently had hitherto escaped attention.

Ajusco, and the region beyond to fair Cuernavaca, with one day at the Rio Balsas, in the state of Guerrero, proved far too rich for harvesting in a single season—the pleasure of seeing a multitude of beautiful flowers hitherto unknown to me being marred by the physical impossibility of grasping

half the forms that my eye feasted upon from the windows of the railway train.

The same tantalizing experience awaited me in my travels by rail in other directions from Mexico City. A day at Teziutlan, a beautiful, quiet Indian town, yielded over thirty varieties of ferns. Pachuca—of mining fame—gave me a glimpse of the flora of another state—Hidalgo. Around the orange groves of the Rio Verde, in the state of San Luis Potosi, was found a rich field apparently untouched. Journeys eastward to Tampico, of oil fame, and westward to lovely Guadalajara, enabled me to glimpse other thousands of species that I could not harvest—though with less regret, knowing that my friend, Mr. Pringle, in his labors covering twenty-seven years of time, had made the most of these known to the botanical world.

The approach to the city of Colima, and to the port of Manzanillo, was far more satisfactory, except that the time available was too short to do this extremely rich and nearly virgen field full justice, still I left with presses full to overflowing.

I returned to the United States on nearly the last passenger train that was destined to run under the the administration of Porfirio Diaz, from Mexico City to El Paso, hoping to return to the fascinating field after a month's vacation. But two years were to elapse instead, not until December, 1912, did I again enter the republic, and then through Piedra Negras instead of Juarez.

Resuming my work in Mexico City, under the short and unfortunate regime of Francisco I. Madero, I planned to cover as much of the still little-known flora of the west coast of Mexico as I could accomplish. But again fate willed otherwise, and the early part of the season was spent collecting north of the Rio Grande, in Texas.

In July, 1913, another attempt was made to enter the field, leaving San Diego, California, by steamer, for Manzanillo, and thence by train to Mexico City. Finding it still impractical to prosecute the field work undertaken I again returned home in September, 1913, with comparatively small additional collections.

A partial list of species, nearly complete as far as they have yet been determined by Dr. Jesse Moore Greenman, appears in the third volume of American Plants (the Euphorbiaceae, determined by Dr. Charles F. Millspaugh, appears in the same list). The lichens, determined by Dr. H. E. Hasse; fungi by Dr. Murrill; grasses by Dr. A. S. Hitchcock; and ferns, by William R. Maxon, appear in the same work, but probably more than one thousand species yet await

determination. Dr. Jules Cardot has detected several new species of mosses ,among the few submitted to him for examination.

The following indicates the principal stations where collections were made in 1910, with dates and numbers under which specimens were distributed.

Jalapa, VC, 10 F 1910. Nos. 2801-2862, 3045-6. (All numbers inclusive.)

Vera Cruz, VC, 16 F 1910. Nos. 2863-2910, 3157-60, 3163-5, 3167-8, 3179-83, 3250-2, 3394-3410, 3425-8.

Belleville, Oax (near Sanborn, VC), 23 F 1910. Nos. 2911-49, 2957, 3047-9, 3064, 3332-6, 3386, 3388-9, 3434, 3437-8.

Sanborn, VC, 28 F 1910. Nos. 2950-6, 2958-76, 3173-8, 3235-49, 3256, 3381, 3390-2, 3429, 3435.

Sanborn, VC, 18 Ap 1910. Nos. 2977-3044, 3050-63, 3065-82, 3412-24, 3440-3, 3445, 3448-50.

Carmen, VC, 21 Mr 1910. Nos. 3083-6. (On Tehuantepec National Ry.)

Coatzacoalcos, VC, 21 Mr 1910. Nos. 3087-3109, 3161-2, 3166, 3255, 3257-8, 3295-6, 3393, 3457-66.

Tezonapa, VC, 5 Ap 1910. Nos. 3110-31, 3211, 3380, 3387, 3444.

Cordoba, VC, 6 Ap 1910. Nos. 3132-56, 3207-10, 3212-17, 3253-4, 3337-79, 3382, 3385, 3432-3, 3446-7.

Harvey's ranch, near Sanborn, VC, 31 Mr 1910. Nos. 3169-72 (natives of Guatemala, in cultivation).

Chivela, Oax, 16 Ap 1910. Nos. 3184-93, 3206, 3218, 3275-6, 3299-3302.

Chinameca, VC, 30 Ap 1910. Nos. 3144-3205, 3277-87.

Rincon Antonio, Oax, 21 Ap 1910. Nos. 3219-34, 3259-74, 3383-4, 3436, 3467-72.

Salina Cruz, Oax, 28 Ap 1910. Nos. 3288-94, 3297-8, 3431, 3451-4, 3473-6.

Tehuantepec, Oax, 19 Ap 1910. Nos. 3303-30, 3455-6.

Rinconada, VC, 13 Ap 1910. No. 3411.

Vista Hermosa, VC, 25 Mr 1910. No. 3430.

San Marcos, VC, 25 Mr 1910. No. 3439.

Contreras, DF, 9 Ag 1910. Nos. 3477-3547.

San Angel, DF, 12 Ag 1910. Nos. 3548-71, 3687-99.

Olivar, DF, 15 Ag 1910. Nos. 3572-3611, 3647-86.

Tlalpam, DF, 16 Ag 1910. Nos. 3612-46.

Ajusco, Mex., 19 Ag 1910. Nos. 3700-36, 4442.

Tres Marias, Mex., 23 Ag 1910. Nos. 3737-66.

Cima, Mex., 24 Ag 1910. Nos. 3767-3800, 4234-5.

Parres, Mex., 30 Ag 1910. Nos. 3801-19, 4439-41.

El Parque, Mex., 31 Ag 1910. Nos. 3820-62, 4080-99, 4375-82, 4390-4406, 4418-20.

Alarcon, Mor, 31 Ag 1910. Nos. 3863-71.
Cuernavaca, Mor, 31 Ag 1910. Nos. 3872-94.
Pachuca, Hgo, 5 S 1910. Nos. 3895-3933.
Puebla, Pue, 6 S 1910. No. 3934.
Amozoc, Pue, 6 S 1910. No. 3935.
Acajete, Pue, 6 S 1910. Nos. 3936-44.
La Venta, Pue, 6 S 1910. No. 3945.
San Marcos, Pue, 6 S 1910. No. 3946.
Oriental, Pue, 6 S 1910. Nos. 3947-9, 4066.
Huitzuilzilapam, Pue, 6 S 1910. No. 3950.
Tezuitlan, Pue, 6 S 1910. Nos. 3951-4065.
Mexico, DF, 16 S 1910. Nos. 4067-79, 4100-14.
Telles, Hgo, 21 S 1910. Nos. 4115-59, 4220-3.
Rio Balsas, Gro, 26 Ag 1910. Nos. 4160-4219, 4224-33, 4384-9.
Xochimulco, DF, 3 O 1910. Nos. 4236-66, 4329-64.
Churubusco, DF, 4 O 1910. Nos. 4267-4328, 4443.
Tecoman, Jal, 20 O 1910. Nos. 4444-55.
Manzanillo, Col, 20 O 1910. Nos. 4456-4505.
Colima, Col, 24 O 1910. Nos. 4506-4622.
Alzada, Col, 4 N 1910. Nos. 4623-89.
Tuxpan, Col, 4 N 1910. Nos. 4690-4711.
Cardenas, SLP,-N 1910. Nos. 4712-17.
Near Rio Balsas, Gro, Ag 1910. Nos. 4365-74, 4383, 4407-17, 4421-38.

The above does not include the small collection made at Puerto Angel, Oax, and only a part of those collected in Tehuantepec, and at some other localities. The lists of Texas and west coast and other Mexican plants collected in 1913, have yet to be prepared.

The orchids, submitted to Oakes Ames, of Harvard University, have not yet been reported upon to me; a few living orchids sent to the Missouri Botanical Garden, have been reported upon, but as no herbarium material was secured, are not included in the above. The living cacti collected never reached my home garden in California, so that I am able to add little to the previous knowledge of that family.

Of five hundred species of ferns credited to Mexico, I find about two hundred among my 1910 collections. The total of herbarium numbers for the year exceeds three thousand—but only a part of these have been, or will be, distributed. The difficulties attending the determination of the species will long defer a full account of the year's work.

C. R. ORCUTT,

JOHN JAMES RIVERS

J. J. Rivers, long librarian at the University of California, was born in England January 6, 1824, and died at his home in Santa Monica, California, December 16, 1913. He was chiefly known for his work in Entomology, but also made large collections of mollusks and fossils. An interesting sketch by Ira M. Buell is given in Science, n. s. 39: 319.

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EDWARD SINGLETON HOLDEN

Astronomer, and librarian at the U. S. Naval Academy, formerly director of the Lick Observatory, died March 15, 1914, aged 68 years.

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FERNS

ADIANTUM JORDANI

The Maidenhair fern of Southern California, commonly erect, a few inches high.

Plants collected to order at $10.00 per 100.

CHEILANTHES CALIFORNICA

Lace Fern. A very dainty plant, with finely cut fronds, about 6 inches high.

Plants 50 cents each, $3 per dozen, $12 per 100.

CHEILANTHES CLEVELANDI

Cleveland's Lip Fern. Fronds finely divided, smooth and green above, beneath covered with ciliate scales, at first white, at maturity changing to a rich chestnut brown.

GYMNOGRAMME TRIANGULARIS

California Gold Fern. Fronds dark green, the under side of a rich golden yellow.

Plants 15 cents each, $1.25 per dozen, $6 per 100.

Variety VISCOSA: Silver Fern.

Under side of fronds of a silvery white, not otherwise distinguishable from the Gold Fern.

Plants 15 cents each, $1.25 per dozen, $6 per 100.

NOTHOLAENA NEWBERRYI

Cotton Fern. About 6 inches high, fronds covered with a web of very fine entangled whitish hairs.

Plants 50 cents each, $3 per dozen, $15 per 100.

PELLAEA ANDROMEDAEFOLIA

Coffee Fern. Fronds 4 inches to 2 feet long, ovate, often occurring of a blood red or rich brown color in Southern California.

Plants 15 cents each, $1.25 per dozen, $7.50 per 100.

PELLAEA ORNITHOPUS

Tea Fern. Wire Fern. Fronds 4 to 12 inches long, rigid, finely divided.

Plants 25 cents each, $3 per dozen, $10 per 100.

WOODWARDIA RADICANS

Chain Fern. Fronds often 4 to 6 or even 10 feet high, one of the most luxuriant growers, of wide distribution.

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FRUITS AND FLOWERS

AGAVE SHAWII

Named in honor of Henry Shaw, the founder of the Missouri Botanical Garden. Foliage dark green, broad, strongly armed with a terminal and marginal spines.

Small plants $5 each; over one foot high, $10 each; 10 feet in diameter, $1000 each.

ANEMOPSIS CALIFORNICA

Yerba Manse. The broad light green leaves and the pure white petals of the flower often blotched with crimson. The roots are in great repute as a cure for wounds.

Plants 50 cents each, $3 per dozen, $20 per 100.

DODECATHEON CLEVELANDI

California Cyclamen, or Shooting Stars. The flowers white, flushed with rose purple.

Roots 15 cents each, $1 per dozen, $5 per 100.

DUDLEYA PULVERULENTA

The large, broad leaves are covered with a white powder, giving it a beautiful appearance.

Plants 50 cents to $2 each; $5 per dozen, $25 per 100.

HESPEROCALLIS UNDULATA

Desert Lily. This native of the Colorado Desert has large edible bulbs, which produce large handsome white flowers.

Collected to order only, at $20 per 100.

PHOENIX CANARIENSIS

Canary Island Palm. One of the most graceful and popular of the hardy palms grown in Southern California.

Seeds 25 cents per dozen, $1 per 100.

PHOENIX DACTYLIFERA

Date Palm. This native of the African deserts is now successfully grown in Arizona, Southern California and parts of Mexico. Readily grown from seed.

Seeds 25 cents per dozen, $1 per 100.

RESURRECTION PLANT

See Selaginella lepidophylla.

While our supply lasts we will mail to subscribers at 25 cents each.

RICHARDIA AFRICANA: Calla.

Roots 25 cents each, $10 per 100.

SCHINUS MOLLE: Peruvian Pepper Tree.

Seeds 10 cents per packet, $1 per lb.

STYLOPHYLLUM EDULE

A curious plant, with long, cylindrical, pointed leaves, used as a salad by the California Indians.

Plants 50 cents each, $4 per dozen, $20 per 100.

STYLOPHYLLUM ORCUTTI

Similar to S: edule, but smaller. Plants 25 cents each, $10 per 100.

YUCCA MOJAVENSIS

Plants $1.00 each.

ZEPHYRANTHES CANDIDA

Zephyr Flower. A small bulbous plant, with lovely white flowers about 2 inches across.

Bulbs 50 cents per dozen, $2 per 100.

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CACTOGRAPHY

MAMMILLARIA BOCASANA

Named for the Sierra de Bocas, Mexico, where this small cactus grows among the rocks, less than 2 inches high, flattened-globose, often in clustered heads covered with interlacing white radial spines, one of the 4 central spines is hooked.

Plants Fifty cents each, when in stock.

MAMMILLARIA DIOICA

Mrs. Katharine Brandegee gave this name to the common fish-hook cactus, once so abundant around San Diego, California, and south in Baja California—formerly considered to be Scheer's M: Goodridgii (Goodrichii), originally described from Corros (Cedrus) Island.

Plants 25 cents each; clusters $1.00.

MYRTILLOCACTUS GEOMETRIZANS

Garambulla. A small tree, much branched, with 5 or 6 ribs with clusters of stout ashy spines, yielding a small fruit, much relished by the Mexicans either in its fresh or dried state. Plants $1.00 each.

PENIOCEREUS GREGGII

Jara Matraca; remarkable for the enormous fleshy root, from which the slender 4- or 5-ribbed stem rises and produces large white nocturnal flowers. The ovoid long-acuminate scarlet fruit, bearing elevated spineless areoles, is edible.

The tuberous roots $2.00, $3.00, or $5.00 each.

SELENICEREUS GRANDIFLORUS

Queen of the Night, a climbing species, with slender stems and short spines, bearing large fragrant white flowers, open at night only. The stems are used in medicine.

Plants 25 cents to $1.00 each.

THORNBER'S MAMMILLARIA

See Mammillaria Thornberi.

Plants of this tiny species may be had by subscribers at 50 cents each.

WILCOXIA POSELGERI

Root tuberous, resembling that of a Dahlia; stems 1 to 4 feet high, slender, branched, covered with a delicate lace-work of interlacing white spines; flowers over 2 inches in diameter, rose purple.

Plants 50 cents and $1.00 each.

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PIN HOLDERS

An ingenious aluminum contrivance, for holding pins. Packed in box, postpaid, $1.50 each; $75 per 100.

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WEST AMERICAN SCIENTIST

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ORCUTT'S MILLION DOLLAR LIST

Here is a partial list of Real Estate for sale or trade—out of several million dollars' worth on our books.

We cannot always supply just what a client wants—perhaps the reader wishes to sell something that would just suit someone else. We invite your co-operation in bringing buyer and seller together. Exchanges, rentals, loans, insurance, conveyancing, paying taxes and managing properties are included in the duties of a Real Estate Dealer. "Your business is ours."

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Apartment Houses

San Diego, 24 apartments, will take part in trade. $65,000.
San Diego, on Broadway. $60,000.

Hotels

San Diego, close in, good terms. $36,000.
Sanatorium in New Mexico, for trade. $6,000.

Business Lots: San Diego, California.

Broadway corners, $30,000; $40,000; $60,000; $100,000; $150,000.
Fifth street, 25 feet, $25,000; 25 feet improved, $85,000.
Market street, corner, $20,000; $40,000.
M street, improved corner, $8,000.
F street, improved, 50x140, $6,000; corner 100x100, $12,000.
Eighth street, 50x100, $40,000.

Business lots: Encanto, California.

Improved income, $2,000.

Alberta, Canada

Lot in Macleod, $650. One in Edson, $300.

Chula Vista, California

Five-room house and ¾-acre lot, $2800.

Escondido, California

24 acres, improved, part in vineyard, $11,500.

Residence lots: San Diego

Arlington, many choice lots, each $250 upward.
Belmont, East San Diego, each $200 to $800.
Clifton, East San Diego, $250 to $500 each.
Eastgate, East San Diego, $25 to $100 each.
Fairmount, East San Diego, each $250 upward.
City Heights, each, $25 (canyon lots), upward.

Timber lands

Vancouver Island, B. C., 32 sections, 512 million ft., $150,000.
Mexican timber and grazing lands, in large tracts.

Ranches: California

National City, 5 ac., fine residence, orange trees, etc. $16,000.
Chollas Valley, 1.85 acres, part in lemons, $1500.
Chollas Valley, 5 acres, part in bearing oranges, $7500.
Chollas Valley, 8 acres, fine orange orchard, $11,500.
Riverside, 10 acres in alfalfa, $6500.
Modoc County, 600 acres, improved, $45,000.
Otay, 5 acres, improved, $3000.
Jamacha, 700 acres, $52,500. Terms.
La Mesa, lemon orchard, bearing, 5 acres, $8500.
Ramona, 5 acres, improved, $2200. Will exchange.
Ramona, 408 acres, a snap at $7000 cash.
Tia Juana, 40 acres, $8000. Will exchange.
Tia Juana, 46 acres, $60 per acre, not alfalfa land.

Ranches: Mexico

San Jose del Cabo, Baja California, 25,000 acres, $50,000 gold.
Baja California on U. S. boundary, 20,000 acres, $100,000.
Baja California, 7,500 acres, fine stock ranch near U. S. boundary, $30,000. Terms. Part trade.
Old Mexico, tropical fruit, timber and grazing lands in large tracts.

Exchanges: for California

South Dakota, 160 acres, $4800.
Minnesota, 2-story brick, $8500.
Idaho, lot in Post Falls. $150.
Sierra Madre, Los Angeles Co., 8-room house, $6000, to exchange for San Diego.
Washington, 2 houses in Everett, each $2000.

Gold Mines

A group near the Colorado river, with ore blocked out to value exceeding $100,000, can be bought at a low figure.
A group in British Columbia, with $20,000 in development work and high grade ore ($50 to $100 per ton), $150,000. Small cash payment.

We have clients wanting good mines of various kinds, and have many undeveloped properties listed.

San Diego, California

(See also "Business lots" and "Residence lots.")
University Heights, 3-room house, $800.
East San Diego, 4-room house, $1750.
University Heights, 2 lots on terms, $600.
Ocean Beach, 4-room house, $1200.
Pacific Beach, lots $300 each.
Middletown, 100x100, $7000.
Mission Hills, 6-room house, modern, $4500.

Many other business and residence lots, residences and other bargains for sale or exchange.

BELLE AIR PARK

Lot 39, block 5, Belle Air Park, San Mateo Co., Cal., (''South San Francisco''). 25x100 feet, sidewalk, sewers, water, graded street, street trees, etc. Price $800.

Will exchange for San Diego.

BROADWAY

Lot 12, block 2, Culverwell's Addition to San Diego, Cal., 50x100 at S. E. corner of 17th st. and Broadway.

Tenants wanted for stores to be erected.

EAST KLAMATH FALLS, OREGON

Block 6, First Addition, six full lots. This block adjoins a public park. Price $600.

Will exchange for San Diego.

GOLDEN HILL

N. E. cor. of 23d and E sts., San Diego, Cal., (75 feet on E, 65 ft. on 23d), with 12-room house (corner vacant). One of the choicest view corners on Golden Hill. Price $15,000.

Will give long lease of whole property, or improve for satisfactory tenant.

GUTHRIE, OKLAHOMA

Lot or block 9, Ball and Ferguson's subdivision of N. ½ of N. W. ¼, of section 20, T. 16 N., R. 2 W. of the Indian Meridian, containing two acres. Price $1000.

Will exchange for San Diego.

JAMUL, CALIFORNIA

The N. E. ¼ of N .W. ¼, section 2, T. 17 S., R. 2 E., S. B. M., San Diego county. ''Running water, perennial springs and oak trees.'' Price $2000.

Will exchange for San Diego.

MANCHESTER, MONTANA

Lot 10, block 28, 50x125 feet, near the co-operative woolen mill. Price $1000.

Will exchange for San Diego.

PORT ANGELES, WASHINGTON

Lots 1 to 24, block 11, Union Pacific second addition. Price $150 each.

Will exchange for San Diego.

NATIONAL CITY, CALIFORNIA

Lots 6, 7 & 8, block 3, 75x100 feet, on First Ave., fenced, water piped on, etc. Price $1500.

Lot 13, block 273, 25x100 feet, corner 17th st. and 8th ave., improved with 2-story brick building 25x60 ft. that cost $10,000. Will give long lease, sell or exchange.

NEW RIVERSIDE

Lot 5, containing about 10 acres, adjoining the City of San Diego. Price $2000.

Lot 6, containing about 10 acres, adjoining the City of San Diego. Price $2000.

REAL ESTATE AND INVESTMENTS

SPEARFISH, SOUTH DAKOTA

Lot 23, block 3, Golden Belt Addition, 25x100 feet near the business center of this beautiful and prosperous town. Price $500.

Will exchange for San Diego.

VINEYARDS

Forty acres near Sultana, California, 29 in full bearing Muscats, 5 in Malagas, with some black figs, and alfalfa. Soil rich, dark, sandy loam, with an abundance of water. Price $13,000. Terms. Let us show you.

Forty acres near Dinuba, California, with dwelling, barn, pumping plant, and "lots of water;" 14 acres in Muscat and 10 in Thompson's Seedless; 12 in bearing peaches, 4 in alfalfa. Price $12,000, one-third down. Let us show you.

Eighty acres in raisins and table grapes, alfalfa, etc., near Sultana, California, with an abundant water supply. The soil and climate are especially adapted to the growing of Malagas and the Emperor grape, but less than half is yet planted, and the vines not yet in full bearing. Price $13,200. Terms. Let us show you.

Unimproved lands near Orosi, California, suitable for vines, oranges, or other fruits, can be offered in tracts of 20, 40, 60, or 80 acres, at $100 per acre, on reasonable terms.

El Cajon valley, near San Diego, California, is noted for its profitable raisin vineyards. Let us furnish particulars regarding some bargains.

At Jamul, California, we have 40 acres suitable for a vineyard or olive orchard. See notice elsewhere.

OLIVE ORCHARDS

Twenty acres near Orosi, California, eight acres just planted in Manzanillo and Mission olives. Soil is a rich sandy loam. An abundance of water. Price $6000. Terms on application. Let us show you.

ORANGE ORCHARDS

Smith Mountain Tract, 100 acres, 60 in Valencia oranges, 30 in vineyard (Malaga, Muscat and Thompson's Seedless). Near Dinuba, Cal. Price $60,000—terms. Let us show you.

CITRUS NURSERY

The Unger nursery, one of the show places of Tulare and Fresno counties, can be purchased with or without the present stock of citrus trees, olives, etc. Price $300 per acre, all planted in citrus trees. Terms. Let us show you.

TO CONCHOLOGISTS:

I have prepared a manuscript list, designed in part as an enumeration of the Mollusca of a region called West America—extending from the Arctic regions to the southern extremity of Baja (Lower) California. Montana, Colorado, and New Mexico may be taken as the eastern limits of this region. The work will also include other American species collected by the writer, especially those of Vermont, Texas, and Mexico.

It is in part a review of some of the literature on the mollusca of the region designated, as far as the author's library permits. Some of the synonymy is noted, and many of the changes in nomenclature, but the larger part of these are left for the reader to learn as he may. Many notes have been culled from the literature available, as well as descriptions of some of the new species of recent years.

C. R. Orcutt, No. 1705 Broadway, San Diego, California.

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Armstrong, Margaret: in collaboration with J. J. Thornber: Field book of western wild flowers. 596 p. 500 ill. and 48 colored plates. 1915. $2 (leather $2.50). Postage 15 cents.

This work describes in popular language the commoner wild flowers of Washington, Oregon, California, Idaho, Nevada, Utah and Arizona. Prof. Thornber is responsible for the nomenclature in this work, which is conservative rather than "modern," or vice versa, as Cereus giganteus is still Cereus instead of Carnegiea, while Mammillaria becomes "Cactus," a name which should be found only in synonymy. But these perplexing questions will not trouble the average reader for whom this work is intended, and the book will be welcomed we believe by a host of tourists, and others. The artist-author worked under the disadvantage of a small sized page, the work being designed for the pocket—a mistake we believe on the part of the publishers, in that the illustrations are not given full justice. Yet the coloring is exquisite in the plates, and the other figures will be found very useful, and we welcome it among the nature books of the year.

G. P. Putnam's Sons, publishers, New York.

Noble, H. G. S.: The New York stock exchange in the crisis of 1914. 89 p. 1915.

Treats of the closing of the exchange, the period of suspension and the reopening during one of the most critical periods in the country's history. The essay is by the president of the exchange and authoritative, and will be of great interest to students of financial questions. The service rendered by the exchange to the country was far beyond calculation.

Clark, Austin Hobart:

A monograph of the existing crinoids. Vol 1, part 1, Washington, 1915. U. S. nat. mus. bulletin 82.

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REAL ESTATE OWNERS

We will advertise in this magazine any improved or vacant lots or lands, when given exclusive agency for a period of not less than 6 months, if price and terms are satisfactory. No charge except regular commission in case of sale—which will be divided with any agent who assists in effecting a sale.

ADVERTISEMENTS

PAINTINGS

1 A MEXICAN GENTLEMAN. A fine old portrait of a typical man of affairs of Mexican colonial days, according to its former owner (1910) over 100 years old. Canvas 26½33 inches, unsigned. Price $250.

2 A MONK'S PORTRAIT. Miniature style on wood panel (split, but capable of being restored in fine condition), 5¾x1¼ inches, with monogram of Thomas De Keyser in corner. This old master was born in Amsterdam about 1595, died 1667. The painting has been owned by a Spaniard in Mexico City for over 50 years, and bought by the present owner in 1913. Price $1000.

3 DOVE DESCENDING. Canvas 33x45 inches, unsigned, portraying four figures in sacred history, in the rich coloring that is characteristic of the famous Indian artist, Manuel Cabrera, whose work it is believed to be, according to a well-known critic in Mexico City. Price $1000.

4. RAMON CASTENYEDA. A sketch by this noted Mexican artist, a member of the San Carlos Academy of Mexico City, who died about 1908, was acquired from an intimate friend of his. Price $50.

5 CRUCIFIXION. An unsigned canvas 28x39 inches, depicting the Savior as surrounded on the cross by four sorrowing companions; is fairly typical of Mexican art in colonial days. Price $250.

6 CHRIST ON THE CROSS. An unsigned canvas 26x34½ inches, depicting the Savior alone on the cross, "over 100 years old," purchased in Mexico City in 1910. Price $100.

7 SKETCH, by Ramon Casteneda, designed for the municipal palace, in Juarez, and later executed on a larger scale. $50.

8 EL RIO PANUCO. Sketch by Ramon Casteneda, dated May, 1894, and signed. View of Tampico. Price $75.

9 Sketch of a pack mule, by Ramon Casteneda. Price $50.

10 MADONNA AND CHILD. An old painting on tin, 9x12 inches, purchased in Mexico City. Price $10.

11 CHRIST BEARING HIS CROSS. 8x10, on metal, Price $10.

12 CHRIST AND CHILD. On metal, 7x10. $5.

13 HEART OF JESUS. Canvas 11½x15½ inches, old but in fair shape. $50.

14 SAVIOR AND CHILD. On metal, 10x13 inches. $20.

15 DRAGON AND SAINT. On metal, 9x12 inches, old. $15.

16 Eucalyptus globulus, water color sketch, 18x26 inches, framed, showing foliage and flowers. Price $40.

17 Cereus grandiflorus, showing flower and fruit. Water color sketch 24x30 inches, showing the plant climbing a Royal Palm, with Plumieria alba, Phyllocactus strictus, and other Cuban plants. $75.

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CACTI AND RARE PLANTS

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BOOKS — OLD AND NEW

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ADVERTISEMENTS

BOOKS—OLD AND NEW

Orders for any books, pamphlets, or periodicals are invited. When requested we will forward partial lists of literature on hand, or pertaining to any subject. Natural history works a specialty.

MOLLUSCA

Arnold, Augusta Foote: The sea-beach at ebb-tide. 490 p. 600 ill. An interesting account of shells, sea-weeds, and marine life. $3.

Keep, Josiah: West Coast Shells. 230 p. ill. 1893. Out of print. $3.00.

Keep, Josiah: West Coast Shells. 1911. 346 p. ill. $2.00. Postage 12 cents.

Orcutt, C. R.: West American Mollusca. 13 numbers of 4 p. each, all pub. $1.00.

Orcutt, C. R.: Notes on the mollusks of the vicinity of San Diego, Cal., and Todos Santos bay, Lower California. With comments by W. H. Dall. 19 p. 25 cents.

HISTORY

Smythe, William E.: History of San Diego, 1542-1907. 736 p. ill. $6.00.

MEXICO

Williams, J. J.: Isthmus of Tehuantepec. 295 p. (except p. 159-162, and atlas). A rare work, with many interesting notes on the natural history. $4.

NATURAL HISTORY

Hall, James: Geology and Paleontology of the (U. S. and Mexican) boundary. From Emory's report. With descriptions of Cretaceous and Tertiary fossils, by T. A. Conrad. 21 plates. $3.

Emory, William H.: Report on the U. S. and Mexican boundary survey. Vol. I, except report by James Hall. An interesting narrative, with many portraits of Indians, and other illustrations. $5.00.

BOTANY

Orcutt, C. R.: American plants. Per vol., $4. 3 vols. now ready.

Orcutt, C. R.: Review of the Cactaceae. All pub. $5.

The following old paintings are offered for sale by the editor at prices named. They may be seen by special appointment.

Labouret, J.: Monographie de la famille des Cactees. Very rare. $10.00.

Torrey, John: Botany of the Pacific railroad exploration. 1856. With description of the Cactaceae, by George Engelmann, and other papers. 59 plates. $5.

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WANTED

Nautilus: all, or any volume, in exchange for shells. Also other works on shells. Will exchange shells.

Shell collection: Will exchange real estate for a shell collection of equal value. Have lots in Montana, South Dakota, Alabama, Florida, Oregon, Washington, and other states.

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